54. (cancelled)

REMARKS

Claims 1-54 stand pending in the application. Claims 21-52 and 54 stand withdrawn from consideration as being drawn to a non-elected invention and are hereby cancelled, without prejudice to reintroduction in a subsequent divisional or continuation application. Claims 1-20 and 53 stand rejected.

Election/Restriction

The consolidation of Groups I, II and III into new Group I for examination is gratefully acknowledged. The finality of the restriction requirement with regard to the other Groups is noted. Accordingly, the non-elected claims 21-52 and 54 have been cancelled, without prejudice. Applicants reserve the right to file divisional or continuation applications directed to these non-elected claims.

Drawings

The drawings were objected to on several bases:

With regard to paragraph 5 of the Office Action, it is respectfully submitted that it is conventional and appropriate to use different reference numbering for figures depicting different embodiments of an invention. Thus withdrawal of the objections on this basis is respectfully requested.

With regard to paragraph 6, reference number 434 at page 27, line 8 is a typographical error. The correct number is 424, as shown in Fig. 4A. Correction has been made to the specification. It is proposed to add reference number 600 to Fig. 6 as indicated in the red-lined copy of the drawing accompanying this response. Thus withdrawal of the objections on this basis is respectfully requested.

With regard to paragraph 7, the specification has been corrected to refer to reference number 424 in connection with Fig. 4A, and to reference letters A-E in connection with Fig. 10 (noted in the Brief Description of the Drawings section of the application as filed). Reference numbers 200, 202, 204 and 206 are mentioned in connection with the description of Fig. 2 at page 23. Thus withdrawal of the objections on these bases is respectfully requested.

With regard to paragraph 8, the identified reference numbers in Figs. 4A and 4B and referring to the depicted stages in the process embodiments for making protein-binding arrays in accordance with the invention shown in the figures. For purposes of clarification, the parentheses have been replaced by arrows in the red-lined proposed drawing correction submitted herewith.

Claim Rejections under 35 U.S.C. §112

Claims 3, 9, 16 and 20 were rejected as indefinite under 35 U.S.C. §112, second paragraph as indefinite.

Claim 3 amended to provide the indefinite article "a" before each substrate type to resolve antecedent basis issue.

Claim 9 has been amended to recite the more general term "aminothiol" in place of the term to which the Examiner objected. Support for this amendment is found at page 12, first paragraph.

Claims 16 and 20 have been amended to provide the chemical nomenclature represented by the "LC" term. Support for this amendment is found at page 36, Example 3: "NHS-LC-LC-biotin ("LC" refers to 6-aminohexanoyl and "NHS" refers to N-hydroxysuccinimidyl)." In addition, the dependency of claim 20 has been corrected.

In view of these clarifying amendments, withdrawal of the rejection under §112 is respectfully requested.

Claim Rejections under 35 U.S.C. §§102 and 103

Claims 1-4, 6 and 53 were rejected under 35 U.S.C. §102(b) as being anticipated by the Weetall article ("Weetall"). Claims 1-7, 9-14 and 17-18 were rejected under 35 U.S.C. §102(b) as being anticipated by US Patent No. 5,624,711 to Sundberg et al. ("Sundberg"). Claims 8,14-16 and 19-20 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sundberg in view of US Patent No. 5,482,867 to Barrett et al. ("Barrett"). These rejections are respectfully traversed.

The present invention pertains to arrays of peptidomimetic protein-binding agents, as recited in claim 1. As noted at page 14, lines 28-34:

> As noted above, the protein-binding agents of the present invention are composed of three segments: a peptidomimetic, an anchor, and a linker connecting the peptidomimetic and the anchor.
>
> A "peptidomimetic" as used herein refers to nonpeptide synthetic polymers or oligomers [emphasis added] that detectably interact with proteins or receptors in a manner analogous to protein-protein or protein-peptide physical chemical interactions under assay conditions.

Thus, peptides and proteins are excluded from the term "peptidomimetic" used in the claims. Peptidomimetics in accordance with the present invention are not susceptible to degradation by enzymes and are thus more stable than regular peptides and proteins. In this way, they are distinguished from proteins and peptides not only in their structure and appearance, but also in their behavior and function. Preferred peptidomimetics are peptoids, as described in detail in the present application.

The references cited by the Examiner disclose a variety of ligands immobilized on solid supports. As noted by the Examiner, these ligands (or anti-ligands) include peptides, proteins and oligonucleotides. However, none of the references disclose a nonpeptide synthetic peptidomimetic such as is described and claimed in the present application. Therefore, it is respectfully submitted that neither Weetall nor Sundberg anticipate the present invention. Similarly, nor does Barrett, alone or in combination with the other cited references teach the claimed invention.

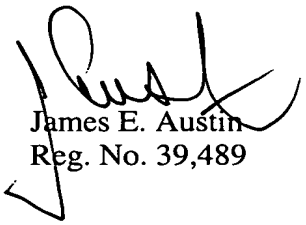
Accordingly, for at least these reasons, it is respectfully submitted that claim1 of the present application is novel and patentable over the cited references. The remaining pending claims depend, directly or indirectly, from claim 1 and are thus submitted to be patentable for at least the same reasons. Withdrawal of the rejections under 35 U.S.C. §§102(b) and 103(a) is respectfully requested.

Conclusion

A clean version of the pending claims amended specification paragraphs with instructions for entry pursuant to 37 C.F.R. §1.121(c)(1)(i) is included above. A marked-up version of the amended claims and specification paragraphs pursuant to 37 C.F.R. §1.121(c)(1)(ii) is attached.

Applicants believe that all pending claims are allowable and respectfully request a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below. If any additional fees are due in connection with the filing of this amendment, the Commissioner is authorized to charge such fees to Deposit Account 500388 (Order No. CHIRP014).

Respectfully submitted,
BEYER WEAVER & THOMAS, LLP



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

SPECIFICATION

Page 16, lines 8-18:

The anchoring group may be attached to the peptidomimetic at either end (in the case of a peptoid, at either the C- or N-terminus). It can be attached either as a submonomer (e.g., a substituted amine), or as a modification of a peptidomimetic (e.g., peptoid) side chain after synthesis. Alternatively, in another example, the anchoring group may be present as a linker connecting the peptoid to a beaded solid support upon which it is synthesized. This linker may be cleaved from the resin along with the peptoid, to provide a readily available anchoring group. Some examples are described in co-pending U.S. Patent Application Serial No. 10/117,841 [_____ [(Attorney Docket No. 16708.001)], titled *Peptoids Incorporating Chemoselective Functionalities,* filed April 6, 2001, which is incorporated herein by reference in its entirety and for all purposes.

Page 24, lines 1-7:

The anchoring and linker groups may be attached to the peptoid at either the C- or N-terminus. They can be attached either as a submonomer (e.g., as described in U.S. Patent No. 5,877,278 and above-referenced co-pending U.S. Patent Application Serial No. 10/117,841 [_____ [(Attorney Docket No. 16708.001)]) during the peptoid synthesis as described above in the patent documents incorporated by reference, or with in situ activated amino acid coupling steps, as a modification of the peptoid after synthesis, according to procedures known to those of skill in the art.

Page 24, line 29 to page 25, line 4:

The thiol or biotin anchoring group can also be attached to the end of the peptoid at the C-terminus. For example, 4-(diphenylhydroxymethyl)benzoic acid (available from Fluka) is treated with cystamine hydrochloride in the presence of an acid catalyst. Next the resulting amine is protected as the *N*-(9-flurenylmethoxycarbonyl) (*N*-FMOC) derivative, and the resulting FMOC-NH-CH_2CH_2-S-Tr-COOH is coupled to aminomethyl-Big Beads (400-500 microns, Polymer Labs). The peptoid is synthesized on the deprotected amine as described above, and treatment with TFA results in cleavage of the thiol-modified peptoid from the resin, while

leaving the trityl protecting group on the resin. Such procedures are described in the above-referenced co-pending U.S. Patent Application Serial No. 10/117,841. [_____ [(Attorney Docket No. 16708.001)]

Page 27, lines 2-11:

Figs. 4A and 4B briefly illustrate processes for making protein-binding agent arrays for some embodiments of the invention in accordance with the procedures described above. In Fig. 4A, a process (400) for making an array in which protein-binding agents are bound directly to the inorganic surface of a bare planar substrate is depicted. A planar substrate 412 with a gold or aluminum surface is provided (410). The surface is prepared for binding (cleaned) as described above. Protein-binding agents 422 with a thiol anchoring group 424 [434] are spotted onto the substrate 412 (420). Once binding of the protein-binding agents is complete, a blocking agent 432, namely a hydrophilic group, such as an alcohol, or a protein is applied to the surface of the substrate 412 where no protein-binding agent 422 is bound (430).

Page 38, lines 25-32:

As illustrated in Fig. 10, hexameric peptides of different and known affinity to the "anti-glu" antibody were synthesized with a biotin anchoring group and heptameric gycyl linker. To prove the concept of the present invention, the biotinylated peptides (A through E) were spotted onto avidin-treated slides as described in the present disclosure. The slides were blocked with casein and probed with Cy5-labelled antiglu antibodies. The gradations in signal intensity correlate with the known differences (e.g., measured by direct ELISA) in affinity between the peptides and their cognate antibody probe.

CLAIMS

3. The array of claim 2, wherein said substrate is one of a glass, a plastic or a metal.

9. The array of claim 2, wherein said metal substrate surface is further coated with a functionalized one of an aminothiol [amino-modified thiol] and an aminosilane [a siloxane] beneath said anchoring segment.

16. The array of claim 13, wherein said avidin protein is attached to the metal substrate surface via an NHS-6-aminohexanoyl-6-aminohexanoyl [LC-LC]-biotin moiety.

20. The array of claim 19 [17], wherein said avidin-functionalized aminosilane or aminothiol comprises an NHS-6-aminohexanoyl-6-aminohexanoyl [LC-LC]-biotin moiety.

21-52. (cancelled)

54. (cancelled)